

LIST OF CLAIMS / AMENDMENTS

Claims 1, 21, 39, 45, 46, and 54 are presented previously.

Please amend claims 20, and 37-38 as shown herein.

Claims 1-57 are pending and are listed following:

1. (Previously Presented) A method comprising:

dynamically determining present members of a load-balancing cluster which includes nodes and a node manager; and

monitoring application-layer availability of one or more members of the cluster, the monitoring being performed by one or more clients outside of the cluster which are communicatively linked to the node manager in the cluster, such that the monitoring is from a client perspective to detect an error that may impact the application-layer availability as it appears to the one or more clients from outside of the cluster.

2. (Original) A method as recited in claim 1 further comprising exocusterly controlling activity state of the members of the cluster.

3. (Original) A method as recited in claim 1 further comprising exocusterly and selectively deactivating one or more active members of the cluster.

1 4. **(Original)** A method as recited in claim 1 further comprising,
2 based upon the monitoring, identifying one or more active members of the cluster
3 that are presently overwhelmed at the application-layer.

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5 5. **(Original)** A method as recited in claim 1 further comprising:
6 based upon the monitoring, identifying one or more active members of the
7 cluster that are presently overwhelmed at the application-layer;
8 exocusterly deactivating one or more members identified by the
9 identifying.

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11 6. **(Original)** A method as recited in claim 1 further comprising
12 exocusterly and selectively activating one or more inactive members of the
13 cluster.

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15 7. **(Original)** A method as recited in claim 1 further comprising,
16 based upon the monitoring, identifying one or more inactive members of the
17 cluster that are not presently overwhelmed at the application-layer.

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19 8. **(Original)** A method as recited in claim 1 further comprising:
20 based upon the monitoring, identifying one or more inactive members of
21 the cluster that are not presently overwhelmed at the application-layer;
22 exocusterly activating one or more members identified by the identifying.

1 9. **(Original)** A method as recited in claim 1 further comprising:
2 based upon the monitoring, identifying one or more active members of the
3 cluster that are presently overwhelmed at the application-layer and identifying one
4 or more inactive members of the cluster that are not presently overwhelmed at the
5 application-layer;

6 exocusterly deactivating one or more active members identified by the
7 identifying;

8 exocusterly activating one or more inactive members identified by the
9 identifying.

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11 10. **(Original)** A method as recited in claim 1 further comprising
12 determining a present activity state of members of the cluster.

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14 11. **(Original)** A method as recited in claim 1 further comprising:
15 determining a present activity state of members of the cluster;
16 tracking and persisting the activity states of the members of the cluster.

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18 12. **(Original)** A method as recited in claim 11, wherein the activity
19 states include cluster states.

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21 13. **(Original)** A method as recited in claim 11 further comprising
22 reporting a present activity state of one or more members of the cluster.

1 **14. (Original)** A method as recited in claim 11 further comprising
2 reporting historical record of the activity states of one or more members of the
3 cluster.

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5 **15. (Original)** A method as recited in claim 11 further comprising
6 reporting a present application-layer state of one or more members of the cluster.

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8 **16. (Original)** A method as recited in claim 11 further comprising
9 reporting historical record of the application-layer states of one or more members
10 of the cluster.

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12 **17. (Original)** A method as recited in claim 1, wherein the
13 monitoring comprises monitoring in one or more different application-layer
14 protocols.

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16 **18. (Original)** A method as recited in claim 1, further comprises,
17 based upon the monitoring, determining the application-layer availability of one or
18 more members based upon an indicator of such availability, the indicator sent
19 from a member being monitored.
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1 **19. (Original)** A method as recited in claim 1, further comprises:
2 based upon the monitoring, determining the application-layer availability of
3 one or more members based upon a indicator of such availability, the indicator
4 sent from a member being monitored;
5 the member being monitored determining such availability and generating
6 such indicator.

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8 **20. (Currently Amended)** A tangible computer-readable medium
9 having computer-executable instructions that, when executed by a computer,
10 perform the method as recited in claim 1.

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12 **21. (Previously Presented)** A method comprising:
13 monitoring application-layer availability of members of a load-balancing
14 cluster which includes nodes and a node manager, the monitoring being performed
15 by one or more clients outside of the cluster which are communicatively linked to
16 the node manager in the cluster, such that the monitoring is from a client
17 perspective to detect an error that may impact the application-layer availability as
18 it appears to the one or more clients from outside of the cluster; and
19 exocusterly controlling activity state of the members of the cluster.

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21 **22. (Original)** A method as recited in claim 21, wherein the
22 controlling comprises selectively deactivating one or more active members of the
23 cluster.
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1 **23. (Original)** A method as recited in claim 21, wherein the
2 controlling comprises, based upon the monitoring, identifying one or more active
3 members of the cluster that are presently overwhelmed at the application-layer.

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5 **24. (Original)** A method as recited in claim 21, wherein the
6 controlling comprises:

7 based upon the monitoring, identifying one or more active members of the
8 cluster that are presently overwhelmed at the application-layer;

9 exocusterly deactivating one or more members identified by the
10 identifying.

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12 **25. (Original)** A method as recited in claim 21, wherein the
13 controlling comprises selectively activating one or more inactive members of the
14 load-balancing cluster.

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16 **26. (Original)** A method as recited in claim 21, wherein the
17 controlling comprises, based upon the monitoring, identifying one or more
18 inactive members of the cluster that are not presently overwhelmed at the
19 application-layer.
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1 27. (Original) A method as recited in claim 21, wherein the
2 controlling comprises:

3 based upon the monitoring, identifying one or more inactive members of
4 the cluster that are not presently overwhelmed at the application-layer;

5 exoclusterly activating one or more members identified by the identifying.

6
7 28. (Original) A method as recited in claim 21, wherein the
8 controlling comprises:

9 based upon the monitoring, identifying one or more active members of the
10 cluster that are presently overwhelmed at the application-layer and identifying one
11 or more inactive members of the cluster that are not presently overwhelmed at the
12 application-layer;

13 exoclusterly deactivating one or more active members identified by the
14 identifying;

15 exoclusterly activating one or more inactive members identified by the
16 identifying.

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18 29. (Original) A method as recited in claim 21 further comprising
19 determining a present activity state of the members of the cluster.

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21 30. (Original) A method as recited in claim 21 further comprising:

22 determining a present activity state of the members of the cluster;

23 tracking and persisting the activity states of the members of the cluster.
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1 31. **(Original)** A method as recited in claim 30, wherein the activity
2 state includes a cluster state.

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4 32. **(Original)** A method as recited in claim 30 further comprising
5 reporting a present activity state of one or more members of the cluster.

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7 33. **(Original)** A method as recited in claim 30 further comprising
8 reporting historical record of the activity states of one or more members of the
9 cluster.

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11 34. **(Original)** A method as recited in claim 30 further comprising
12 reporting a present application-layer state of one or more members of the cluster.

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14 35. **(Original)** A method as recited in claim 30 further comprising
15 reporting historical record of the application-layer states of one or more members
16 of the cluster.

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18 36. **(Original)** A method as recited in claim 21, wherein the
19 monitoring comprises monitoring in one or more different application-layer
20 protocols.

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22 37. **(Currently Amended)** A tangible computer-readable medium
23 having computer-executable instructions that, when executed by a computer,
24 performs the method as recited in claim 21.
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2 **38. (Currently Amended)** A tangible computer-readable medium
3 having computer-executable instructions that, when executed by a computer,
4 perform a method comprising:

5 dynamically determining present members of a load-balancing cluster
6 which includes nodes and a node manager and an activity state of each member;

7 monitoring application-layer availability of the one or more members of the
8 cluster as such availability is observed by the computer outside of the cluster
9 which is communicatively linked to the node manager in the cluster, such that the
10 monitoring is from a client perspective to detect an error that may impact the
11 application-layer availability as it appears to the computer from outside of the
12 cluster; and

13 exocusterly controlling the activity state of the members of the cluster.

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15 **39. (Previously Presented)** A system comprising:

16 a dynamic cluster-membership determiner configured to exocusterly and
17 dynamically determine present members of a load-balancing cluster which
18 includes nodes and a node manager; and

19 an exocuster monitor configured to monitor application-layer availability
20 of the present members of the cluster, the exocuster monitor distributed across
21 one or more clients outside of the cluster which are communicatively linked to the
22 node manager in the cluster, such that monitoring is from a client perspective to
23 detect an error that may impact the application-layer availability as it appears to
24 the one or more clients from outside of the cluster.

1 40. **(Original)** A system as recited in claim 39 further comprising an
2 exocluster controller configured to control an activity state of the members of the
3 cluster.

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5 41. **(Original)** A system as recited in claim 39 further comprising an
6 overload-identifier configured to identify, based upon the monitored availability,
7 one or more active members of the cluster that are presently overwhelmed at the
8 application-layer.

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10 42. **(Original)** A system as recited in claim 39 further comprising an
11 overload-identifier configured to identify, based upon the monitored availability,
12 one or more inactive members of the cluster that are not presently overwhelmed at
13 the application-layer.

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15 43. **(Original)** A system as recited in claim 39 further comprising a
16 state-determiner configured to determine a present activity state of members of the
17 cluster.

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19 44. **(Original)** A system as recited in claim 39 further comprising:
20 a state-determiner configured to determine a present activity state of
21 members of the cluster;
22 a database configured to store the activity states of the members of the
23 cluster.
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1 **45. (Previously Presented)** A system as recited in claim 39, wherein
2 the exocluster monitor is protocol agnostic.

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4 **46. (Previously Presented)** A system comprising:
5 an exocluster monitor configured to monitor application-layer availability
6 of members of a load-balancing cluster which includes nodes and a node manager,
7 the exocluster monitor distributed across one or more clients outside of the cluster
8 which are communicatively linked to the node manager in the cluster, such that
9 monitoring is from a client perspective to detect an error that may impact the
10 application-layer availability as it appears to the one or more clients from outside
11 of the cluster; and

12 an exocluster controller configured to control an activity state of members
13 of the cluster.

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15 **47. (Original)** A system as recited in claim 46, wherein the exocluster
16 controller is further configured to exocusterly and selectively deactivate one or
17 more active members of the cluster.

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19 **48. (Original)** A system as recited in claim 46 further comprising an
20 overload-identifier configured to identify, based upon the monitored availability,
21 one or more active members of the cluster that are presently overwhelmed at the
22 application-layer.

1 49. **(Original)** A system as recited in claim 46, wherein the exocluster
2 controller is further configured to exocusterly and selectively activate one or more
3 inactive members of the cluster.

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5 50. **(Original)** A system as recited in claim 46 further comprising an
6 overload-identifier configured to identify, based upon the monitored availability,
7 one or more inactive members of the cluster that are not presently overwhelmed at
8 the application-layer.

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10 51. **(Original)** A system as recited in claim 46 further comprising a
11 state-determiner configured to determine a present activity state of the members of
12 the cluster.

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14 52. **(Original)** A system as recited in claim 46 further comprising:
15 a state-determiner configured to determine a present activity state of the
16 members of the cluster;

17 a database configured to store the activity states of the members of the
18 cluster.

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20 53. **(Original)** A system as recited in claim 46, wherein the monitor is
21 protocol agnostic.

1 **54. (Previously Presented)** A dynamic, active, exocluster monitoring
2 system for monitoring application-layer availability of members of a load-
3 balancing cluster and for controlling an activity state of such members, the
4 monitoring system comprising:

5 an app-monitor configured to exoclusterly monitor the members of the
6 cluster which includes nodes and a node manager, the app-monitor distributed
7 across one or more clients outside of the cluster which are communicatively linked
8 to the node manager in the cluster, such that monitoring is from a client
9 perspective to detect an error that may impact the application-layer availability as
10 it appears to the one or more clients from outside of the cluster;

11 a cluster-control configured to exoclusterly determine the activity state of
12 the members of the cluster and to exoclusterly control the activity state of the
13 members of the cluster; and

14 a central controller configured to coordinate and control the app-monitor
15 and the cluster-control.

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17 **55. (Original)** A system as recited in claim 54 further comprising a
18 database configured to store state change information, including cluster state and
19 application-layer state.

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21 **56. (Original)** A system as recited in claim 54 further comprising
22 multiple app-monitors.
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1 57. (Original) A system as recited in claim 54 further comprising
2 multiple cluster-controls.

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